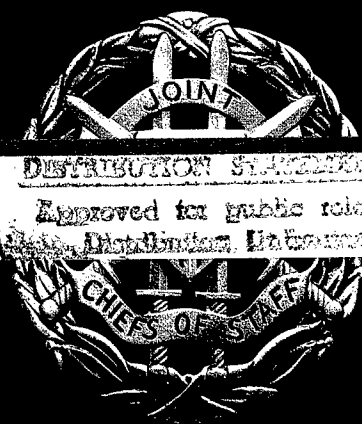


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JTTP for Joint Suppression of Enemy Air Defenses (J-SEAD)



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PREFACE

1. Scope

This publication focuses on the responsibilities and procedures for joint suppression of enemy air defenses (J-SEAD). This publication defines J-SEAD and describes J-SEAD planning, coordination, and command and control responsibilities.

2. Purpose

This publication has been prepared under the direction of the Chairman of the Joint Chiefs of Staff. It sets forth doctrine and selected joint tactics, techniques, and procedures (JTTP) to govern the joint activities and performance of the Armed Forces of the United States in joint operations as well as the doctrinal basis for US military involvement in multinational and interagency operations. It provides military guidance for the exercise of authority by combatant commanders and other joint force commanders and prescribes doctrine for joint operations and training. It provides military guidance for use by the Armed Forces in preparing their appropriate plans. It is not the intent of this publication to restrict the authority of the joint force commander (JFC) from organizing the force and executing the mission in a manner the JFC deems most appropriate to ensure unity of effort in the accomplishment of the overall mission.

3. Application

a. Doctrine and selected tactics, techniques, and procedures and guidance established in this publication apply to the commanders of combatant commands, subunified commands, joint task forces, and subordinate components of these commands. These principles and guidance also may apply when significant forces of one Service are attached to forces of another Service or when significant forces of one Service support forces of another Service.

b. The guidance in this publication is authoritative; as such, this doctrine (or JTTP) will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise. If conflicts arise between the contents of this publication and the contents of Service publications, this publication will take precedence for the activities of joint forces unless the Chairman of the Joint Chiefs of Staff, normally in coordination with the other members of the Joint Chiefs of Staff, has provided more current and specific guidance. Commanders of forces operating as part of a multinational (alliance or coalition) military command should follow multinational doctrine and guidance ratified by the United States. For doctrine and procedures not ratified by the United States, commanders should evaluate and follow the multinational command's doctrine and procedures, where applicable.

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For the Chairman of the Joint Chiefs of Staff:



WALTER CROSS
Lieutenant General, USAF
Director, Joint Staff

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Preface

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TABLE OF CONTENTS

	PAGE
EXECUTIVE SUMMARY	v
CHAPTER I	
INTRODUCTION	
• Background	I-1
• The Threat	I-3
• Countermeasures	I-5
• Joint Suppression Measures	I-5
CHAPTER II	
COMMAND AND CONTROL	
• Purpose	II-1
• Planning Objectives	II-1
• Command and Staff Functions	II-1
• Planning Phase	II-5
• Execution Phase	II-6
CHAPTER III	
J-SEAD OPERATIONS	
• Background	III-1
• AOR/JOA Air Defense System Suppression	III-1
• Localized Suppression Operations	III-4
• Opportune Suppression	III-10
APPENDIX	
A References	A-1
B Administrative Instructions	B-1
GLOSSARY	
Part I—Abbreviations and Acronyms	GL-1
Part II—Terms and Definitions	GL-2
FIGURE	
I-1 Categories of J-SEAD Operations	I-1
I-2 Tasks for an Integrated Air Defense System	I-3
I-3 Joint Suppression Measures	I-6

Table of Contents

II-1 J-SEAD Responsibilities of the Joint Force Director for
Operations (J-3) II-2

II-2 Joint Force Component Commanders J-SEAD Responsibilities II-3

III-1 JFACC AOR/JOA Air Defense System Suppression Responsibilities III-4

III-2 Localized Suppression Planning Responsibilities III-7

III-3 Missions Requiring Corridor Suppression III-9

EXECUTIVE SUMMARY COMMANDER'S OVERVIEW

- Discusses the Concepts for Joint Suppression of Enemy Air Defenses (J-SEAD)
 - Provides Guidance on Command and Control Relationships During J-SEAD
 - Discusses Concepts for Planning and Executing J-SEAD Operations
-

Basic Concepts

Suppression of enemy air defenses and joint suppression of enemy air defenses (J-SEAD) are a subset of counterair operations.

Suppression of enemy air defenses (SEAD) is any activity that neutralizes, destroys, or temporarily degrades enemy surface based air defenses by destructive and/or disruptive means. **Joint suppression of enemy air defenses (J-SEAD) is a broad term that encompasses all SEAD activities provided by components of a joint force in support of one another.** SEAD and J-SEAD need to be an integral part of planning and executing joint air operations. **J-SEAD operations can fall into three categories: area of responsibility (AOR)/joint operations area (JOA) air defense system suppression, localized suppression, and opportune suppression.**

The Threat

Air defense threats can encompass many systems that are normally integrated in a national, alliance, or subnational architecture typically called an integrated air defense system .

Integrated air defense doctrine normally stresses detection, identification, and warning of air threats; **destruction or neutralization** of hostile aircraft; **redundant protection** for high value assets, strategic targets, key command, control, communications and computer nodes and critical military units; and jamming of aircraft navigation, communication, and target-acquisition systems. **Enemy integrated air defense system (IADS) doctrine often stresses rigid control over air defense activities.** Doctrine for mobile IADS elements may stress echeloning of forces in-depth and include tactical and strategic surface-to-air missiles and anti-aircraft artillery systems. The **maneuver of ground forces** must be a key consideration when planning J-SEAD operations. Planners must be aware of the changing IADS threat as the enemy maneuvers.

Executive Summary

Countermeasures

Tactical and technical countermeasures against enemy air defenses are constantly being refined and improved.

Many countermeasures represent a reactive approach to provide security for air operations and as such, their employment often degrades mission effectiveness. **SEAD is a more proactive form of security for air operations which allows supported aircrews to be more effective.** The array of J-SEAD capabilities allow forces to choose the best means and ways to conduct particular J-SEAD operations including **increasing the overall effectiveness of friendly air operations, minimizing duplication of effort, and promoting responsiveness.**

Joint Suppression Measures

During J-SEAD operations, suppression requirements vary according to mission objectives, system capabilities, and threat complexity.

Major employment considerations include overall air defense system architecture, capabilities of system components, geography and terrain, disposition and density of defenses, weather, resupply and repair capabilities, and friendly force organization, training, and equipment. J-SEAD operations can be accomplished through destructive and disruptive means. **Destructive means** seek the destruction of the target system or operating personnel. **Disruptive means**, whether active or passive, temporarily deny, degrade, deceive, delay, or neutralize enemy air defense systems to increase aircraft survivability. **Joint air operations may require support** (e.g., suppression of enemy air defenses, ground based air defense) **from resources other than aircraft.** The joint force commander (JFC) may direct components to support joint air operations with assets, capabilities, or forces, in addition to the air capabilities/forces provided. **Deception can support SEAD activities** by causing confusion for the enemy as to the location and or timing of friendly air operations. **Electronic deception** can be especially effective when the enemy is attempting to conduct air operations in the vicinity of their own air defenses.

Planning Objectives

Each component of a joint force has unique suppression capabilities and responsibilities to support J-SEAD operations.

There are three primary objectives for planning J-SEAD in support of air operations: (1) Accomplish an accurate appraisal of enemy air defenses and their ability to influence the outcome of overall air operations. (2) Decide on the scope, magnitude, and duration of SEAD operations necessary to reduce enemy air defense capabilities to acceptable risk levels. (3) Determine the capabilities of

Executive Summary

available suppression assets, as well as potential competing requirements for these forces.

Command and Staff Functions

The joint force commander, key staff officers, and subordinate commanders conduct joint operation planning and coordination for J-SEAD.

JFC guidance will establish the requirements for J-SEAD to facilitate the joint operation or campaign. The **JFC staff** participates in planning J-SEAD support, monitors J-SEAD execution, coordinates and deconflicts J-SEAD operations as directed by the JFC, and evaluates J-SEAD impact on both friendly and enemy activities, as directed by the JFC. The **joint force commander's electronic warfare staff** provides electronic warfare expertise, planning, and coordination for joint activities, including J-SEAD operations. The **joint targeting coordination board** can play the same role in supporting the J-SEAD effort as it does for other joint targeting operations.

The JFC normally designates a joint force air component commander (JFACC). Because J-SEAD operations are normally a subset of counterair operations, **the JFACC is normally assigned responsibility for the coordination and planning of AOR/JOA SEAD**. The JFACC may also support another component in a localized J-SEAD operation. The JFACC will normally be tasked to plan SEAD air operations with air capabilities/forces made available. However, the JFACC may also be tasked to propose plans for employing other joint force capabilities to conduct J-SEAD.

J-SEAD may be coordinated and planned for by various component commanders. Based on their missions, component commanders determine SEAD requirements, plan and coordinate J-SEAD in support of their operations, and may be designated as the supported commander in a particular operation. Based on JFC guidance, the component commanders are responsible for detailed mission planning and execution of J-SEAD operations.

Planning Phase

Planning for J-SEAD operations is an integral part of the normal sequence of joint air operations planning actions.

Following mission analysis, the JFC gives the joint staff, the JFACC, and other component commanders enough initial guidance to begin analyzing the threat and formulating course of actions (COAs) to achieve the joint mission objectives. The JFC may also provide specific SEAD guidance and objectives within the COA. The

Executive Summary

JFACC and other component commanders use the commander's guidance as a starting point in preparing staff estimates. The J-3 develops multiple COAs to accomplish the JFC overall mission objectives. Each COA is proposed with corresponding SEAD concepts (normally developed by the JFACC) in the COA development cycle. These concepts include an estimate of the enemy's air defense capability, that capability's effect on each friendly course of action, and the enemy's probable courses of action. The J-3 incorporates the SEAD concepts into the other staff estimates, forming the commander's estimate. The commander's estimate is then presented to the JFC for final selection of a COA. Based on the selected COA, the JFC assigns missions to the component commanders and provides corresponding guidance for J-SEAD operations.

Execution Phase

The execution of J-SEAD operations is influenced by many factors.

The joint force mission objectives, enemy systems capabilities, friendly assets available, SEAD priorities, supporting intelligence, and threat suppression requirements all are considered in execution of J-SEAD. The JFC will be involved primarily in monitoring and evaluating the effects of SEAD efforts on the overall campaign or operation plan. Based upon JFC guidance, the component commanders do the detailed mission planning and provide the capabilities/forces to execute J-SEAD operations. Responsibilities for engaging SEAD targets will be established by the JFC.

AOR/JOA Air Defense Suppression

There are three categories of J-SEAD: area of responsibility /joint operations area air defense system suppression, localized suppression, and opportune suppression.

AOR/JOA air defense system suppression is conducted in support of campaign operations; it consists of AOR/JOA-wide operations conducted against specific enemy air defense systems to degrade or destroy their effectiveness. It should target high payoff air defense assets that will result in the greatest degradation of the enemy's total system. **The immediate objective of AOR/JOA air defense system suppression operations is to permit effective friendly air operations** by protecting friendly airborne systems, disrupting the cohesion of enemy air defenses, and establishing flexibility for friendly operations on both sides of the forward line of own troops. **Planning for AOR/JOA air defense system suppression is based upon the JFC's operation or campaign planning objectives** and is accomplished by the JFACC, when designated.

Localized Suppression

Localized suppression operations are normally confined to geographical areas associated with specified ground targets or friendly transit routes. These operations contribute to local air superiority, facilitating joint operations in the area. Localized suppression operations have time and space limitations because they protect specific operations or missions.

The planning responsibilities are as follows: (1) the echelon requesting support starts localized suppression planning; (2) the JFACC coordinates employment of airborne suppression capabilities/forces; (3) the JFACC develops a recommended threat priority list; (4) organic intelligence agencies use this localized threat priority list for planning, intelligence collection, and analysis of operational effectiveness. For surface-to-surface assets, the ground and naval components' fire support elements and fire support coordination centers will determine the suppression systems available to conduct localized suppression based on JFC guidance. **SEAD coordination occurs at all echelons and is important to avoid mutual interference and for target prioritization. Liaison elements located in the Joint Air Operations Center (JAOC) aid this effort.** Processing of localized suppression requests proceeds from the lowest echelon of command to the highest using the appropriate air control system.

Opportune Suppression

Opportune suppression is usually unplanned because many air defense threats are not identified in enough time for planned suppression. Opportune suppression includes aircrew self-defense, targets of opportunity, targets acquired by observers or controllers, and targets acquired by aircrews. **Opportune suppression is a continuous operation involving immediate response** to acquired air defense targets of opportunity. **The JFC or higher authority will establish the rules of engagement for opportune suppression.**

CONCLUSION

SEAD and J-SEAD operations are undertaken to create favorable conditions for all friendly air operations. **They need to be an integral part of the planning for joint air operations.** AOR/JOA air defense suppression, localized suppression, and opportune suppression are all conducted in support of the JFC's operation or campaign plan objectives.

Executive Summary

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CHAPTER I INTRODUCTION

"From the very beginning the British had an extraordinary advantage which we could never overcome throughout the entire war: radar and fighter control. For us and for our command this was a surprise, and a very bitter one."

**Adolf Galland
WWII Luftwaffe Ace**

1. Background

a. Suppression of enemy air defenses (SEAD) is any activity that neutralizes, destroys, or temporarily degrades enemy surface based air defenses by destructive and/or disruptive means. **Joint suppression of enemy air defenses (J-SEAD) is a broad term that encompasses all SEAD activities provided by components of a joint force in support of one another.** As shown in Figure I-1, J-SEAD operations can fall into three categories: area of responsibility (AOR)/joint operations area (JOA) air defense system suppression, localized suppression, and opportune suppression. **AOR/JOA air defense system suppression** creates increasingly favorable conditions for friendly operations by disabling enemy air defense systems (or major capabilities of those systems).

Localized suppression operations normally have specified time and space limitations because they support specific operations or missions. **Opportune suppression** includes self-defense and offensive attacks against enemy air defense targets of opportunity.

b. **SEAD and J-SEAD** are not ends in and of themselves but, rather, **they are a subset of counterair operations** which create favorable conditions for all friendly air operations. Therefore, **SEAD and J-SEAD need to be an integral part of planning and executing joint air operations.**

c. **SEAD objectives are specified by the joint force commander**, who will consider the unique capabilities of each component to contribute to counterair operations.

CATEGORIES OF J-SEAD OPERATIONS

AOR/JOA AIR DEFENSE SYSTEM SUPPRESSION

LOCALIZED SUPPRESSION

OPPORTUNE SUPPRESSION

Figure I-1. Categories of J-SEAD Operations

THE BEGINNINGS OF SEAD

It is hardly a surprise that since the time soldiers first left the surface of the earth, militarily, opponents have sought ways to bring them back down. There are reports of balloon and anti-balloon artillery in the American Civil War and the Franco Prussian War, and in 1890 the Russians tested a field-gun battery against a balloon moored three kilometers away. The first aircraft downed in combat fell to ground fire in the Italo-Turkish War of 1912; so when World War I began, there were precedents for ground-based air defense.

It is similarly unremarkable, then, that whoever controlled this third dimension above the battlefield would seek to stay there with equal vigor. During WW I, operations to suppress enemy AAA were confined to strafing and bombing enemy artillery and machine gun positions. Since that time, the mission of neutralizing, destroying, or temporarily degrading an enemy air defense system in a specific area by physical and/or electronic means has come to be known as suppression of enemy air defenses (SEAD) and has grown tremendously in importance. There are good reasons why. If an air force of 1,000 aircraft flying two sorties per day per aircraft suffered only a 1 percent attrition rate, that air force would fly 45,150 sorties and have only 557 aircraft remaining at the end of 30 days of combat. If the attrition rate jumped to 10 percent, that same air force would fly only 8,320 sorties and have but two aircraft remaining at the end of 30 days!

The advent of radar in the interwar years made ground-based air defenses, as well as fighters, more effective, and its potential was clearly recognized. The Luftwaffe attempted to destroy the British radar chains at the outset of the Battle of Britain to "put Britain's eyes out" and make the rest of the plan for attaining air superiority over Britain easier. The Allies also understood the importance of the German radars and flew numerous sorties in attempts to destroy them. To this end, the British developed a radar homing device fitted to three Royal Air Force (RAF) Typhoons. The "Abdullah" equipment worked as intended, however, the aircraft were unarmed, flew only with escort fighters, and provided no new information because the locations of German fixed radars were already well known.

During the Second World War, German AAA proved to be a formidable and deadly defense against Allied aircraft, both bombers and fighters. Attrition rates due to flak during the late summer, 1944 became so high that Eighth Air Force was forced to form specific procedures to reduce these losses. The Eighth Air Force measures recommended a number of tactics to counter the AAA threat to blind-bombing aircraft. When possible, bomber pilots were not to overfly flak defenses en route to and from their targets. Bombers were also to fly at the highest possible altitude consistent with offensive and defensive considerations (i.e. clouds, formation, target visibility, etc.). They also recommended planning bomber spacing and axes of attack to make the fullest use of Window and Carpet countermeasures.

Window was the code name for chaff, thin strips of aluminum that "plumed" when deployed, reflecting a much larger image to the radar on the ground and adding to the radar operators' confusion. Laid in trails, the chaff formed a protective screen for bombers flying within 2,000 feet of the stream. Carpet was a radar jammer which caused interference in the reception of signals by AAA radar. Bombers enjoyed some protection from radar detection when flying, optimally, within one mile of Carpet equipped aircraft.

Besides the nonlethal suppression tactics, more direct methods were also used to counter the deadly flak. The first objective of Operation Market Garden, the September 1944 Allied assault to place three divisions behind German lines, was to provide "anti-aircraft neutralization support," using bomber and fighter aircraft to strike the anti-aircraft installations along the routes to be followed by the troop carrier aircraft and in the areas surrounding the drop and landing zones.

In the Pacific, operations virtually mirrored those in the European theater. As the Japanese increased the numbers and sophistication of their radars, the US increased the numbers of assets assigned to counter them. The US forces employed B-24 and B-29 "ferret" aircraft to locate and jam the Japanese radars. B-25 gunships equipped with radar homing receivers were used in the lethal-suppression role, flying down a radar beam until they located the site visually and attacking it with their nose-mounted cannons.

In the Second World War, ground-based air defenses proved to be a lethal counter to US air power. However, loss rates varied with the mission flown. Aircraft which operated at lower altitudes were much more vulnerable to enemy flak than those that operated at higher altitudes. Destructive defense suppression efforts were only part of the solution to the flak problem. Good tactics and the use of electronic countermeasures were also important means for reducing aircraft loss rates. These conclusions would also be borne out in later wars.

SOURCE: Hewitt, William A., *Planting the Seeds of SEAD*,
Maxwell AFB: Air University Press, 1993.

2. The Threat

a. Air defense threats in today's world can encompass many systems that are normally integrated in a national, alliance, or subnational architecture typically called an integrated air defense system (IADS).

b. Integrated air defense doctrine normally stresses the tasks shown in Figure I-2.

c. To accomplish these tasks, enemy IADS doctrine often stresses rigid control over air defense activities. Air

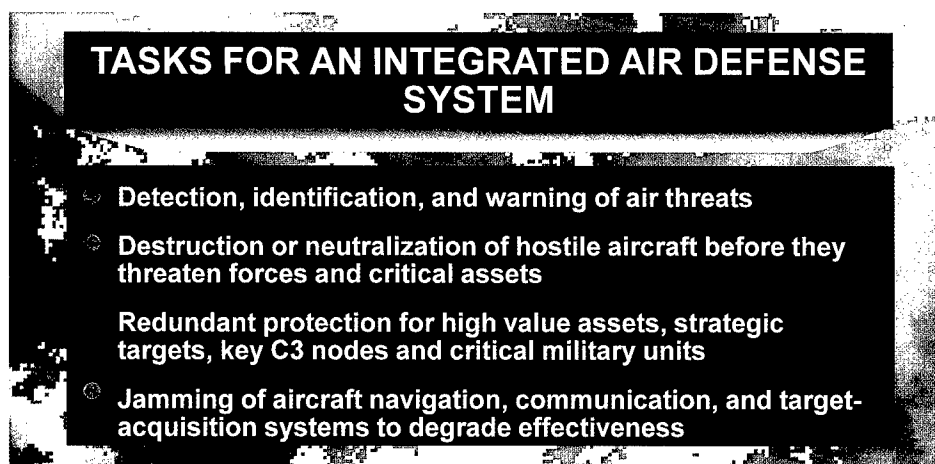


Figure I-2. Tasks for an Integrated Air Defense System

Chapter I

defense commanders located in centralized command and control posts provide warning and cueing, assign targets, and control weapons readiness using overlapping and redundant communication links.

d. Doctrine for mobile IADS elements may stress **echeloning of forces in-depth** and include tactical and strategic **surface-to-air missiles (SAM)** and **antiaircraft artillery (AAA)** systems.

- **Tactical SAM and AAA systems** are man-portable, transportable, or self-propelled. They are primarily used to defend combat-deployed, transiting, and marshalled troops and equipment. Additionally, they augment and may replace strategic systems for air defense coverage of facilities and positions of military significance. Because of their mobility and numbers, these systems can be placed anywhere from the forward edge of the battle area

SUPPRESSING THE SA-2 SAM IN VIETNAM

Aircrews had dealt with threats—fighters and antiaircraft artillery (AAA)—since the beginnings of the use of aircraft in combat, but the introduction of the Soviet-built SA-2 surface-to-air missile (SAM) ushered a new and deadly threat into an air war over Vietnam. Although the SA-2 was not an unexpected threat—having earlier shot down two American U-2 reconnaissance aircraft—the US Air Force's tactical forces were largely unprepared. A counter had to be found, and that counter was the Wild Weasel, a specially configured F-100F aircraft with electronics for detecting and then homing on radar emissions from SAM sites. The Weasel proved to be an effective weapon for suppressing enemy radar and SAM threats.

Many changes occurred in the Wild Weasel program. The F-100F airframe was too slow to keep up with the primary attack aircraft of the day, the F-105, so the Weasel electronics were added to an F-105 aircraft designated the EF-105 and later redesignated the F-105G. That airframe had too little life left in it and was itself replaced by the F-4C. Following the Vietnam War, the F-4C was replaced by the current Wild Weasel platform, the F-4G, a modified F-4E platform incorporating more capable electronic gear for employment against the mobile threats.

Along with changes in aircraft came changes in weapons and tactics. The first Weasels employed rockets to mark the target for following attack aircraft who would destroy the SAM sites with bombs or cluster munitions. These tactics required the aircraft to over-fly the heavily defended sites, increasing the aircraft's vulnerability to the SAMs and to AAA. The introduction of the Shrike antiradiation missile (ARM) negated the requirement to overfly the site, but its short range required further improvement. The improvement came in the Standard ARM, a missile that was followed by development of the high-speed antiradiation missile (HARM)—still the weapon of choice for the Wild Weasel.

SOURCE: Hewitt, William A., *Planting the Seeds of SEAD*,
Maxwell AFB: Air University Press, 1993.

(FEBA) to deep in the enemy's rear echelons.

- **Strategic SAM systems** are usually located in fixed sites and provide barrier, area, and point air defense coverage. The long range and transportability of some of these strategic SAMs mean they could provide air defense coverage over the FEBA at various stages of a conflict and threaten friendly airborne platforms well into friendly airspace.

e. **The maneuver of ground forces must be a key consideration when planning J-SEAD operations.** Although SAM and AAA systems sometimes fail to keep pace with high tempo maneuver operations, they eventually establish ideal fields of fire. Therefore, **planners must be aware of the changing IADS threat as the enemy maneuvers.** Particular attention should be focused on the maneuver of "main effort forces" that tend to have the best SAM and AAA systems.

3. Countermeasures

a. **Tactical and technical countermeasures against enemy air defenses are constantly being refined and improved.** However, many countermeasures represent a reactive approach to provide security for air operations and as such, their employment often degrades mission effectiveness. **SEAD is a more proactive form of security for air operations** which allows supported aircrews to more effectively accomplish their missions.

b. Modern warfare with joint forces requires that aircraft of all components operate in common airspace where they may be threatened by many enemy air

defense systems. **Each component has its own unique capabilities to suppress enemy air defense systems.** Historically, the component directly affected by the threat has assumed the immediate responsibility for suppressing enemy air defense threats. However, the distinct capabilities provided by each component, the diverse combinations these capabilities offer, and the aggregate of total J-SEAD capabilities allow our forces **to choose the best means and ways to conduct particular J-SEAD operations** from the array of available options.

c. **Orchestrating the capabilities of the Service and functional components of a joint force requires a jointly coordinated, effective, and systematic program.** This need led to the development of **J-SEAD procedures**, which are designed to:

- Increase the overall effectiveness of friendly air operations.
- Minimize duplication of effort.
- Promote responsiveness.

4. Joint Suppression Measures

a. During J-SEAD operations, **suppression requirements vary according to mission objectives, system capabilities, and threat complexity.** Major employment considerations include overall air defense system architecture, capabilities of system components, geography and terrain, disposition and density of defenses, weather, resupply and repair capabilities, and friendly force organization, training, and equipment. **J-SEAD operations can be accomplished through destructive and disruptive**

Chapter I

means as shown in Figure I-3. Using sound combinations of the two can maximize their effectiveness.

- **Destructive Means.** Destructive means seek the destruction of the target system or operating personnel. The effects are cumulative and increase aircraft survivability, but destructive means may place large demands on the available combat capabilities/forces. Examples of destructive SEAD capabilities are bombs, air and surface-to-surface missiles, air scatterable mines, and artillery.

- **Disruptive Means.** Disruptive means temporarily deny, degrade, deceive, delay, or neutralize enemy air defense systems to increase aircraft survivability. Disruptive means may be either active or passive.

- **Active Means** include electronic attack (antiradiation missiles (ARM), directed energy, electromagnetic jamming and electromagnetic

deception) expendables (chaff, flares, and decoys), tactics such as deception, avoidance, or evasive flight profiles, and unmanned aerial vehicles.

- **Passive Means** include emission control, camouflage, infrared shielding, warning receivers, and material design features.

b. **Mutual Support.** Joint air operations may require support for suppression of enemy air defenses from resources other than aircraft. The joint force commander (JFC) may direct components to support joint air operations with assets, capabilities, or forces, in addition to the air capabilities/forces provided. The measures a commander may request include:

- **Reconnaissance and target-acquisition support** to gain specific coverage in the area of operations.
- **Electronic warfare (EW)** to provide close-in-jamming and standoff jamming of radar, data links, and voice communication signals.

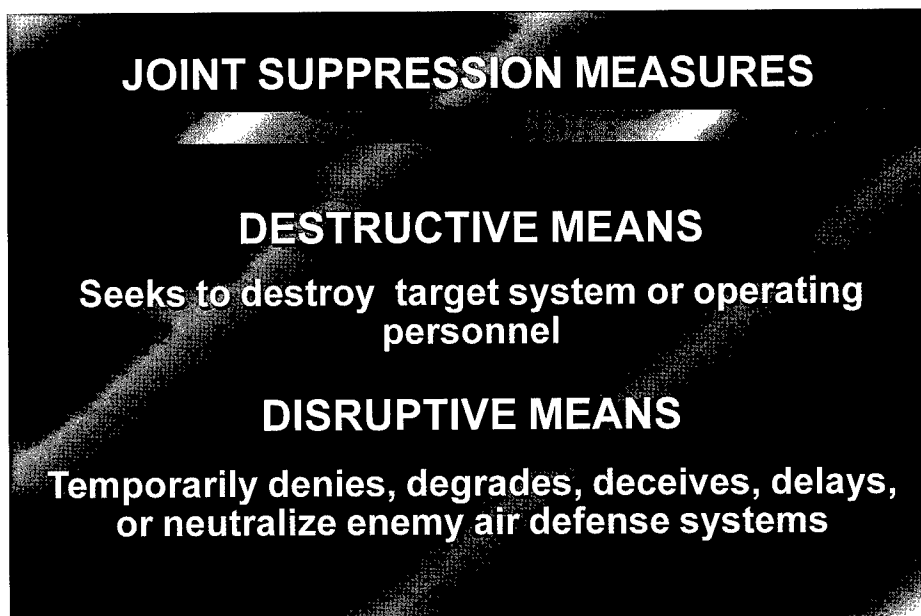


Figure I-3. Joint Suppression Measures

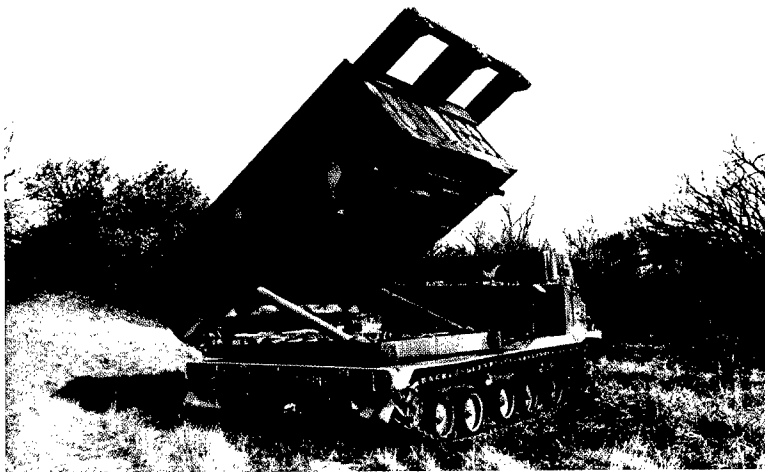


The EA-6B provides the Joint Force Commander with active suppression measures using both destructive and disruptive means.

- **Command and control warfare capabilities/forces** that provide close-in and standoff jamming of enemy radio communications.
 - **Capabilities/forces that provide standoff and close-in jamming** of enemy indirect threat radars, such as warning, acquisition, and ground controlled interception (GCI) systems, or threat radars for SAM and AAA systems.
 - **Electronic protection capabilities/forces** that focus on protection of friendly forces against enemy employment of EW and against any undesirable effects of friendly employment of EW.
 - **Obscurants** (smoke support) to degrade the ability of enemy air defenses to acquire targets.
 - **Attack helicopter and air attacks** on designated enemy targets, target areas, or targets of opportunity handed off from aircraft participating in a joint air operation.
 - **Direct or indirect fire** on enemy air defenses using weapons such as mortars, artillery, missiles, or naval surface fire. Since these operations involve the use of surface, air, naval, and special operations forces, component coordination is required to ensure the desired outcome is achieved.
 - **Direct action by special operations forces (SOF)** to destroy air defenses or disrupt their activities.
 - **Synchronized ground or naval force maneuvers** to disrupt enemy air defenses in an area of air operations.
- c. **Deception.** Deception can support SEAD activities by causing confusion for the enemy as to the location and or timing of friendly air operations. **Electronic deception** can be especially effective when the enemy is attempting to conduct air operations in the vicinity of their own air defenses. In this situation, electronic degradation of enemy identification friend or foe can create a dilemma for the enemy by forcing them to choose between increased risk of fratricide and imposing

Chapter I

restrictions on their own air operations. In either case, enemy operations are degraded. As an economy of force action, drones, decoys, and unmanned aerial vehicles, as well as manipulative, simulative, and imitative communications or actions, should be used wherever suitable. See Joint Pub 3-58, "Joint Doctrine for Military Deception," for details on deception operations.



J-SEAD operations may require support provided by direct or indirect fire from surface-to-surface weapon systems.

CHAPTER II

COMMAND AND CONTROL

"The power of an air force is terrific when there is nothing to oppose it."

Winston Churchill
The Gathering Storm

1. Purpose

Each component of a joint force has unique suppression capabilities and responsibilities to support J-SEAD operations. These responsibilities involve numerous command and staff functions in both the planning and the execution phases.

2. Planning Objectives

There are three primary objectives for planning J-SEAD in support of air operations. First, accomplish an accurate appraisal of enemy air defenses and their ability to influence the outcome of overall air operations. Second, decide on the scope, magnitude, and duration of SEAD operations necessary to reduce enemy air defense capabilities to acceptable risk levels. Finally, determine the capabilities of available suppression assets, as well as potential competing requirements for these forces.

3. Command and Staff Functions

The JFC, key staff officers, and subordinate commanders conduct joint operation planning and coordination for J-SEAD.

a. **Joint Force Commander.** The JFC has full authority to organize commands and forces and to employ those forces as necessary to accomplish assigned missions. The JFC will develop objectives and guidance for the joint operation or campaign. JFC guidance will specify the roles of air, land, maritime, space, and special operations forces in the conduct of

the joint operation or campaign. JFC guidance will establish the requirements for J-SEAD to facilitate these operations.

b. **Joint Force Commander's Staff.** The JFC's staff participates in planning J-SEAD support, monitors J-SEAD execution, coordinates and deconflicts J-SEAD operations as directed by the JFC, and evaluates J-SEAD impact on both friendly and enemy activities, as directed by the JFC.

- **Joint Force Director for Intelligence (J-2).** The J-2 maintains a dynamic, all-source intelligence collection and analysis effort that can be used to support J-SEAD operations. The J-2 responds to and anticipates requirements for intelligence pertinent to SEAD. J-2 major responsibilities as contributing to J-SEAD are:

- Develop and maintain the commander's essential elements of information and intelligence requirements.

- Coordinate with the Joint Force Director for Operations (J-3), joint force air component commander (JFACC), and other component commanders.

- **Joint Force Director for Operations.** The J-3 assists the commander in directing and controlling operations, beginning with planning and carrying through until specific operations are completed. The J-3 may be tasked to coordinate J-SEAD. For J-SEAD

Chapter II

operations, the J-3 responsibilities are shown in Figure II-1.

- **Joint Force Director for Command, Control, Communications and Computers (J-6).** The J-6 is responsible for planning communications-computer support for J-SEAD operations. The J-6 develops interoperable communications-computer architectures in coordination with the J-2 and J-3 and is the coordinator for frequency deconfliction.
- **Joint Force Commander's Electronic Warfare Staff (JCEWS).** The JCEWS provides EW expertise, planning, and coordination for joint activities, including J-SEAD operations. The JCEWS coordinates

with key staff officers, component commands, and other elements as required. The JCEWS is comprised of personnel from each of the components of the joint force. It is headed by the J-3 electronic warfare officer and includes a J-2 representative to facilitate intelligence updates and a J-6 representative to monitor or direct frequency deconfliction.

- **Joint Targeting Coordination Board (JTCB).** The JFC defines the role of the JTCB. It can play the same role in supporting the J-SEAD effort as it does for other joint targeting operations. That is, the JFC may establish a JTCB as a joint force commander-level review mechanism, to coordinate targeting information and develop

J-SEAD RESPONSIBILITIES OF THE JOINT FORCE DIRECTOR FOR OPERATIONS (J-3)

- ✓ Conduct J-SEAD planning as directed by the JFC
- ✓ Monitor J-SEAD activities
- ✓ Develop priority intelligence requirements
- ✓ State essential elements of information to support the JFC's guidance and objectives
- ✓ Support the component commanders in developing planning priorities and establishing target categories
- ✓ Review subordinate operation plans and concept plans to ensure consonance with JFC guidance
- ✓ Coordinate with the J-2, JFACC, and other component commanders

Figure II-1. J-SEAD Responsibilities of the Joint Force Director for Operations (J-3)

targeting guidance and priorities. It may also prepare and refine joint target lists. **The JTCB operates at the macro level** and should not exceed its role of helping the JFC establish broad targeting guidance. It is not intended to operate at the micro level, encroaching on the authority of commanders to plan and perform assigned tasks.

c. **JFACC.** The JFC normally designates a JFACC. Because J-SEAD operations are normally a subset of counterair operations, **the JFACC, as the supported commander, is normally assigned responsibility for the coordination and planning of AOR/JOA SEAD.** Likewise, the JFACC may serve as a supporting commander to provide or supplement localized J-SEAD for specific component operations. **The JFACC will normally be tasked to plan SEAD air**

operations with air capabilities/forces made available. However, the JFACC may also be tasked to propose plans for employing other joint force capabilities to conduct J-SEAD.

d. **Component Commanders.** J-SEAD may be coordinated and planned for by various component commanders. Based on their missions, **component commanders determine SEAD requirements and plan and coordinate J-SEAD in support of their operations.** For a particular operation, the JFC may identify such a component commander as the supported commander for J-SEAD. Based on JFC guidance, the **component commanders are responsible for detailed mission planning and execution of J-SEAD operations.** Specific responsibilities include, but are not limited to those shown in Figure II-2.

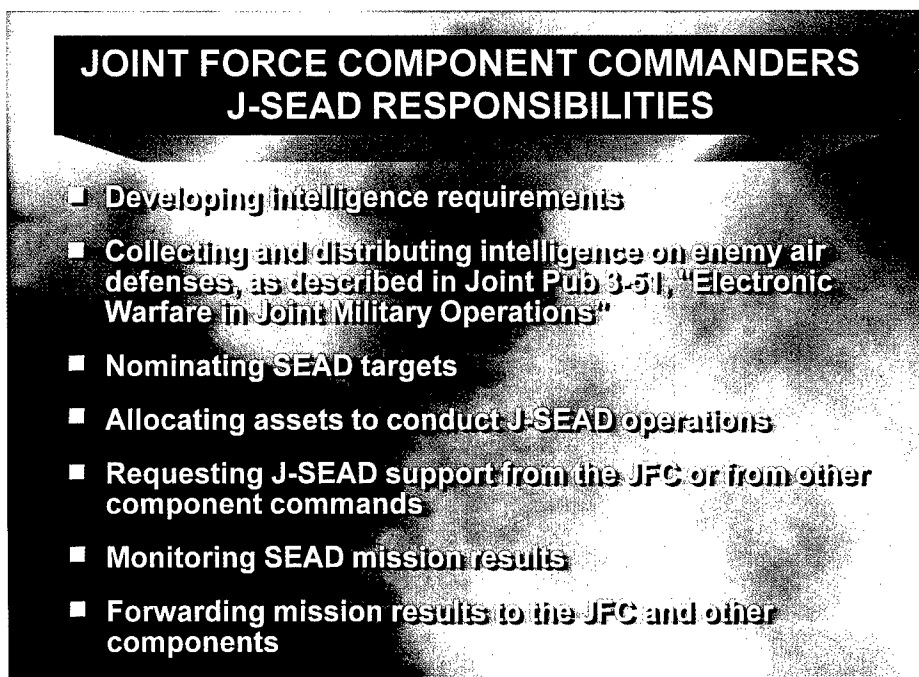


Figure II-2. Joint Force Component Commanders J-SEAD Responsibilities

THE USE OF ACTIVE DISRUPTIVE SEAD IN THE PERSIAN GULF WAR

Significant use of US defense suppression forces occurred in 1990-91, beginning with the deployment of US forces to the Persian Gulf region in response to the Iraqi invasion of Kuwait and potential invasion of Saudi Arabia. After a nearly six-month buildup, the war began in the pre-dawn morning of January 17, 1991, a war in which electronic warfare would play a greater role than in any previous conflict. Phase 1 of the battle plan for coalition forces called for the weight of the coalition air effort to be thrown against the Iraqi air defense and command and control network, air force, and Scud Missiles. The goals of this phase were to gain and maintain air superiority—allowing freedom of action over Iraq for coalition air forces—and to destroy Iraq's ability to retaliate with its weapons of mass destruction. Phase 2 called for destruction of the defenses in the Kuwaiti theater of operations, followed by other phases aimed at cutting off the entrenched Iraqi forces in Kuwait and preparing the way for the ground assault.

Coalition forces faced a modern, integrated air defense network armed with 600 SAM units including Soviet SA-2s, -3s, -6s, -7s, -8s, -9s, and -14s; the Chinese HN-5; and French/German Roland 2 SAMs and 10,000 AAA units including the radar-controlled 57-mm, 85-mm, 100-mm, 130-mm, and the mobile ZSU-23-4 systems.

Initial coalition air attacks took out early warning radars, microwave communications links, and primary air defense control sites, leaving the Iraqi air defenses crippled, without targeting information from the command and control system. There were some air defense units that could still find targets with their own radars, as long as they were not jammed, but the more they used their radars, the more they were exposed to direct attack by anti-radar missiles (ARM).

Those sites that chose to transmit were attacked by F-4G Wild Weasels, F-16s, A-7s, and F/A-18s carrying HARMs. After the second or third day of the war, the Wild Weasels beat up on the enemy radar so badly that they essentially stopped radiating. Severely hampered by the coalition's effective SEAD operations, they would come up for four or five seconds at a time, shoot and go back down again, leaving the missile unguided and ballistic. In fact, the Weasels were so effective that when the Iraqis passively detected the F-4G's distinctive APQ-120 radar, they often would not even bring up their SAM radars. This allowed the coalition to conduct operations by launching only a Weasel flight or two with their radar on—extremely efficient SEAD against SAMs.

In all, the Weasels flew 2,331 combat sorties and 8,587 combat hours, proving their value in suppressing and intimidating (itself a form of suppression) the Iraqi air defenses in the Gulf War.

SOURCE: Hewitt, William A., *Planting the Seeds of SEAD*, Maxwell AFB: Air University Press, 1993.

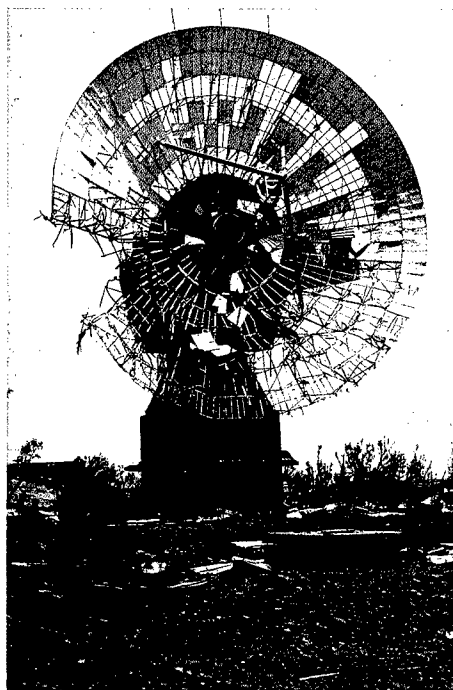
4. Planning Phase

Planning for J-SEAD operations is an integral part of the normal sequence of joint air operations planning actions as prescribed in Joint Pub 3-56.1, "Command and Control for Joint Air Operations," Chapter III, "Planning for Joint Air Operations." When mission analysis begins, the commander and staff treat SEAD as a support requirement for joint operations and objectives. Normally, they will conduct SEAD planning for each approved course of action (COA) and then incorporate it into the final estimate as well as the final plan. **The JFC, JFACC, and other component commanders' staffs conduct J-SEAD planning.** The JFC and the JFACC staffs focus on general planning for the joint force, while all component staffs focus on specific J-SEAD execution planning. The JFC determines the priority and intensity of the overall SEAD effort based on the planning objectives.

a. **Commander's Guidance.** Following mission analysis, the JFC gives the staff, the JFACC, and other component commanders enough initial guidance to begin **analyzing the threat and formulating COAs to achieve the joint mission objectives.** The JFC may also provide specific SEAD guidance and objectives within the COA. The JFACC and other component commanders use the commander's guidance as a starting point in preparing staff estimates. **The commander's guidance should include:**

- **Specific objectives** of the JFC.
- A brief **assessment** of the impact of the enemy's air defense and command, control, communications, and computer (C4) systems on the chosen COA.
- **Requirements** for developing current and future joint force SEAD plans.

b. **Concept Development.** The J-3 develops multiple COAs to accomplish the JFC overall mission objectives. Each COA is proposed with corresponding SEAD concepts (normally developed by the JFACC) in the COA development cycle. These concepts include an estimate of the enemy's air defense capability, that capability's effect on each friendly course of action, and the enemy's probable courses of action. **The J-3 incorporates the SEAD concepts into the other staff estimates, forming the commander's estimate.** The commander's estimate is then presented to the JFC for final selection of a COA.



Proper and precise planning by the joint forces air component commander will lead to effective execution of the J-SEAD mission.

c. **J-SEAD Targeting Guidance.** Based on the selected COA, the JFC assigns missions to the component commanders and provides corresponding guidance for J-SEAD operations.

Chapter II

d. **Combat Zone Airspace Control and Integration of Friendly Electronic Warfare and Suppression of Enemy Air Defenses Measures.** The JFC will integrate electronic warfare and SEAD measures into the overall plan. This integration could degrade the effectiveness of some combat zone airspace control assets, degrade some of the positive control aspects of the system, and reduce the capability to identify aircraft. **Proper coordination by the airspace control authority for the JFC will allow procedural control measures to be developed to compensate for this degradation.** Thorough planning is required to preclude electronic warfare efforts from unduly degrading air defense and airspace control efforts.

5. Execution Phase

The execution of J-SEAD operations is influenced by the joint force mission objectives, enemy systems capabilities, friendly assets available, SEAD priorities,

supporting intelligence, and threat suppression requirements.

a. **Joint Force Commander.** The JFC will be involved primarily in **monitoring and evaluating the effects of SEAD efforts** on the overall campaign operation plan.

b. **Component Commanders.** Based upon JFC guidance, the component commanders do the **detailed mission planning and provide the capabilities/forces to execute J-SEAD operations.** Responsibilities for engaging SEAD targets will be established by the JFC, or the designated representative, based upon the most efficient weapon systems available that also provide for a reasonably high assurance of target suppression. If joint force special operations component commander (JFSOCC) forces are required to execute a SEAD mission or support the components tasked to execute a SEAD mission, the JFC will need to ensure the JFSOCC is notified early enough to allow sufficient time for planning and infiltration of the SOF team.



The F-18 aircraft is one of several capabilities available to the joint forces air component commander to coordinate and plan AOR/JOR J-SEAD operations

CHAPTER III

J-SEAD OPERATIONS

"Once the command of the air is obtained by one of the contending armies, the war must become a conflict between a seeing host and one that is blind."

H.G. Wells

1. Background

The following paragraphs describe operations in the three categories of **J-SEAD: AOR/JOA air defense system suppression, localized suppression, and opportune suppression.**

2. AOR/JOA Air Defense System Suppression

AOR/JOA air defense system suppression is conducted in support of joint

operation or campaign objectives; it **consists of AOR/JOA-wide operations conducted against specific enemy air defense systems to degrade or destroy their effectiveness.** Detailed planning and coordination of AOR/JOA air defense system suppression operations occur before hostilities if possible. Refinement and modification of AOR/JOA air defense system suppression plans should be coordinated in a manner consistent with the procedures to develop the original joint air operations plan.

F-100F WILD WEASELS

To counter the SAM threat during the Southeast Asia conflict, Wild Weasel aircraft arrived at Korat, Thailand on 26 November 1965. These were four two-seat F-100F Super Sabres modified so that the back-seat operator had newly-installed RHAWS (radar homing and warning systems) to determine the location of active SAM sites. What had begun as a 90-day evaluation was to become a permanent part of the war—Wild Weasel flights of four aircraft, code-named Iron Hand, carrying out the very demanding and hazardous job of attacking any SAM site which threatened the strike force.

The mission was complex and perilous but highly effective. An Iron Hand formation consisted of four aircraft: two Wild Weasels carrying air-to-ground missiles and two more loaded with conventional bombs or cluster bomb units. The Weasels would eventually carry four AGM-45A Shrike anti-radiation missiles although it was not until much later (18 April 1966) that the first USAF combat firing of a Shrike was accomplished by these F-100Fs. Later, Shrikes were replaced by AGM-78A Standard Arm missiles, having a longer range and a larger warhead. These missiles homed-in on the emissions from the Fan Song radars found at SAM sites (although they lacked the "memory" to continue homing if the enemy simply shut his radar down). Iron Hand missions and tactics were little-changed throughout the course of the war and their effectiveness was often debated. While it was never clear how many SAM sites they actually destroyed, it was evident that they suppressed SAM defenses to the extent that the missiles could not be fired with nearly as much effectiveness against US aircraft. Another new term was coined, the back-seater of the Wild Weasel being officially an EWO (electronic warfare officer) but, more often, called a Bear (or, Gray Bear).

Chapter III

The men in strike aircraft like Phantoms and Thuds depended on Wild Weasels throughout the war, particularly in heavily-defended areas such as Hanoi and Haiphong. The very high risk associated with the F-100F Wild Weasel mission was proven in short order on 20 December 1965 when Captains John Pitchford and Robert Trier achieved the dubious distinction of being the first Wild Weasel crew shot down. The pair was escorting four Thuds when they detected the Fan Song radar emissions associated with a SAM site. While rolling in to make a run on the missile installation, a 37 mm cannon shell exploded in the aft section of the aircraft.

Captain Pitchford found time to fire marking rockets at the SAM installation before turning towards the Gulf of Tonkin some 60 miles away in the hope he could go "feet wet" (get over the water) where a rescue would be more likely...it was not to be. His F-100F was disintegrating and sending back ugly black clouds of smoke...there was no choice but to eject while still feet dry.

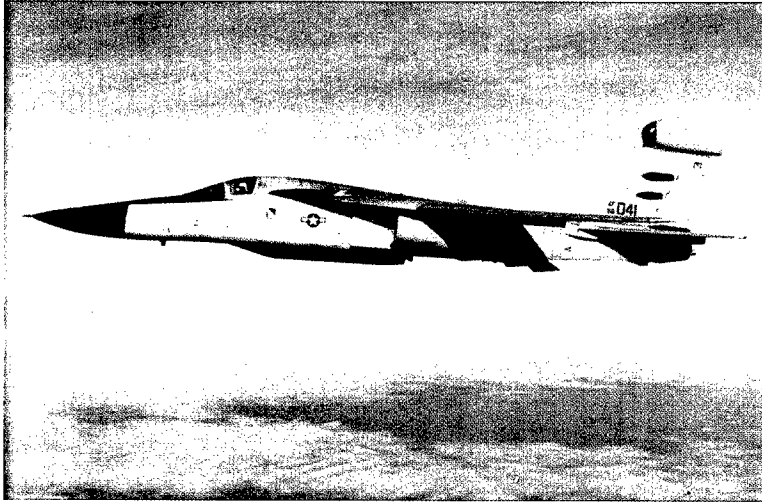
Captain Trier ejected first. Pitchford followed. The F-100F blew itself to pieces in mid-air seconds later. Trier was to be listed as MIA (missing in action), while Pitchford became the first Wild Weasel POW. He faced what can only be called an incredible challenge—preventing the North Vietnamese from torturing him into revealing details of the new anti-SAM operations.

Although it would soldier on as a "fast FAC" (forward air controller) north of the 17th Parallel, the F-100F Super Sabre was considered too vulnerable for the Wild Weasel role in high-threat areas and was replaced by two-seat F-105Fs from 7 May 1966 and later by F-105Gs and F-4Cs. The "90-day" F-100F Wild Weasels were belatedly withdrawn from Southeast Asia in July 1966 after a much longer stay than had been originally planned.

SOURCE: Dorr, Robert F., *Air War Hanoi*,
New York: Blandford Press, 1988.

- a. **Concept.** AOR/JOA air defense system suppression efforts should **target high payoff air defense assets that will result in the greatest degradation of the enemy's total system.** These targets include enemy airborne warning and control systems, radars and associated C4 for early warning, GCI, and long range SAM systems. **The objectives of AOR/JOA air defense system suppression will depend upon the type of air operations (interdiction, counterair, maritime, and other types) planned to support the JFC operation or campaign plan.** For example, in the counterair role, EW/GCI radars, coupled with enemy fighters and their associated C4 systems, pose the greatest threat to friendly standoff systems like airborne warning and control system, Compass Call, and EF-111 aircraft.
- b. **Objectives.** The **immediate objective** of AOR/JOA air defense system suppression operations **is to permit effective friendly air operations by protecting friendly airborne systems,** disrupting the cohesion of enemy air defenses, and establishing flexibility for friendly operations on both sides of the forward line of own troops. Because the results of AOR/JOA air defense system suppression can have a significant impact on friendly operations, they may have a higher priority for air capabilities/forces than localized SEAD objectives. However, planners must consider the impact on the

J-SEAD Operations



The EF-111 platform supports the immediate objective of suppression operations by disrupting the cohesion of enemy air defenses.

maneuver force if strikes requiring localized J-SEAD are canceled.

c. Intelligence Sources. The JFC requires both raw information and completed analyses to develop an effective joint air operations plan which will include critical SEAD targets. National resources and in-theater assets collect data. National intelligence agencies, joint intelligence centers, and intelligence producers provide evaluated analyses (intelligence). **The joint force J-2 will provide available information on:**

- Characteristics, signal operating instructions, criticism, vulnerabilities, redundancies, capabilities, locations, and order of battle of enemy air defense radars, communication links, and C4 facilities.
- SAM, AAA, and EW/GCI sites and facilities.
- Signals intelligence and electronic warfare assets.
- Climate and terrain within the AOR/JOA and their effects on

friendly and enemy operations.

- Rules of engagement (ROE) recommendations.
- Strengths and vulnerabilities of enemy air defense systems as a whole.
- Parametric changes of enemy indirect and direct threat emitters, including wartime reserve modes and reprogramming of target sensing weapon systems.

d. Planning AOR/JOA Air Defense System Suppression

- **Planning** for AOR/JOA air defense system suppression is based upon the JFC's operation or campaign planning objectives and **is accomplished by the JFACC**, when designated. JFACC planning tasks are shown in Figure III-1.
- Within this planning process, **the joint staff is responsible for:**
 - Updating the SEAD order of battle.
 - Monitoring mission results.

JFACC AOR/JOA AIR DEFENSE SYSTEM SUPPRESSION RESPONSIBILITIES

- ▶ Reviewing concept of operations and campaign objectives of the JFC
- ▶ Collating and analyzing SEAD target information
- ▶ Determining requirements for suppression, assigning SEAD target priorities for AOR/JOA air defense system suppression, and determining the appropriate suppression means
- ▶ Assessing the impact of SEAD electronic warfare efforts on friendly operations
- ▶ Planning to avoid fratricide
- ▶ Coordinating joint electronic warfare support to support J-SEAD
- ▶ Assessing threats along ingress and egress routes

Figure III-1. JFACC AOR/JOA Air Defense System Suppression Responsibilities

- Recommending SEAD targeting guidance.
 - Developing command, control, communications, computers, and intelligence protection measures.
 - Deconflicting frequencies and spectrum use between J-SEAD operations and other friendly operations.
 - **The plan for AOR/JOA air defense system suppression resulting from this coordinated effort:**
 - Reflects JFC objectives.
 - Provides a clear division of tasks among components.
 - Delineates coordinating instructions.
 - Outlines suppression resources to be used.
 - Integrates destructive and disruptive planning efforts. To preclude mutual interference during execution, the plan covers resource utilization, radio frequencies, effects of jamming, airspace control measures such as corridors and altitudes, and the collateral effects of J-SEAD operations.
- ### 3. Localized Suppression Operations
- Localized suppression operations are normally confined to geographical areas**

J-SEAD Operations

associated with specified ground targets or friendly transit routes. These operations contribute to local air superiority, facilitating joint operations in the area.

a. **Concept. Localized suppression operations occur throughout the AOR/JOA for all components.** Localized suppression operations have time and space limitations because they protect specific

operations or missions; however, the effects of those missions may extend beyond the objective time period.

b. **Planning Responsibilities.** Planning responsibilities are shown in Figure III-2.

c. **Surface-to-Surface Suppression Capabilities/Forces**

SEAD IN THE MEDITERRANEAN, 1986

Following Vietnam, US defense suppression forces saw no action until March 1986. In that month, the US aircraft carriers USS America, Coral Sea, and Saratoga were placed in the Mediterranean Sea to conduct surface and flight operations in the Gulf of Sidra, south of the 32 degrees 30 minutes North latitude line claimed by Libya as the boundary of its national waters. The carrier task forces were participating in a previously announced US freedom-of-navigation exercise in international waters, outside the 12-mile limit prescribed by international law to define national and international waters. The exercise followed months of increasing tensions, in the Mediterranean beginning in January 1986 with numerous US intercepts of Libyan air force aircraft, including MIG-25 Foxbats, MIG-23 Floggers, SU-22 Fitters, an Il-76 Candid used by the Libyans for maritime reconnaissance, and French-built Mirage Vs and F-1s.

The US ships initially operated north of the 32-30' latitude line. However, on 24 March the US surface action group moved south of the Libyan-proclaimed "line of death" supported by combat air patrol (CAP) and surface combat air patrol (SUCAP) aircraft armed with a full complement of air-to-air and air-to-surface ordnance, including Mk-20 Rockeye, high-speed antiradiation missiles, and Harpoon antiship missiles. Early in the afternoon of the 24th, the Libyan missile base at Sirte fired one or more Soviet-built SA-5 surface-to-air missiles at Navy aircraft flying in support of the surface ships in waters below the line claimed by Libya. The missiles, fired against two F/A-18 Hornets operating from the USS Coral Sea in the southernmost CAP orbit, were fired at extreme range and were wide misses. Later the same day, two Libyan MIG-25s flew into the airspace above the Gulf of Sidra, were intercepted by Navy aircraft, and returned uneventfully to their airfield.

Another SA-5 "firing event" occurred later that evening, and an SA-2 missile firing event—the same type of missile employed by the North Vietnamese—was noted approximately 10 minutes after the SA-5 firing. The missile firings were called "firing events" because the Navy was not sure just how many missiles were fired but suspected at least one and probably more. Then, in the third missile firing on the 24th, the Libyan missile site at Sirte fired another one or more SA-5s at US aircraft 20 minutes after the SA-2 launch. Up to this time, the Defense Department estimated that there had been at least six surface-to-air missiles fired, probably two more, and possibly 12 missiles launched against US aircraft.

Chapter III

US retaliation for the SAM firings was initiated when a US Navy A-6 Intruder attacked a Libyan La Combattante high-speed missile patrol boat near Misratah with a Harpoon antiship missile and Rockeye, sinking it. Two Navy A-7Es from the USS Saratoga also fired HARMs against the SA-5 missile site at Sirte, and the radar site ceased to function—at least temporarily—after the attack.

Later in the evening of 24 March another Navy A-6 aircraft attacked a Libyan Nanuchka missile boat with Mk-20 Rockeye (a cluster munition with an armor-piercing capability), damaging it, but the boat was able to return to port.

Shortly after midnight on the 25th, the USS Yorktown fired two Harpoon missiles against an unidentified surface vessel, sinking it. Later that morning, in the early hours of 25 March, two US Navy A-7s again fired HARMs at the radar site at Sirte, which was once again back in operation. The final action of the Gulf of Sidra confrontation occurred after sunrise that same day when two Navy A-6s, one from the Saratoga and one from the Coral Sea, fired weapons against another Nanuchka patrol boat that had left Libyan territorial waters near Benghazi, leaving it dead in the water. These events were merely a prelude for the action that would occur less than three weeks later, again bringing the US and Libya into conflict and again bringing US defense suppression assets to bear.

ROUND TWO: APRIL 1986

The month following the first confrontation, then-President Reagan ordered the US Navy and Air Force to conduct strikes against Libya to preempt far-reaching terrorist attacks that US intelligence officials said have been planned since the first of the year by Libyan leader Col. Muammar Qaddafi and “key lieutenants” on 30-35 American installations worldwide, including US international air carriers in Latin America.

The raid was also conducted in retaliation for the Libyan-sponsored bombing of a West Berlin night club in which one American Service member was killed and 230 people injured, including about 50 US military personnel. Planning began on 7 April and on 15 April approximately 100 US aircraft participated in the simultaneous raids against five targets around Tripoli and Benghazi. Aircraft involved in the strikes included 24 US Air Force F-111 from the 48th Tactical Fighter Wing at RAF Lakenheath in the United Kingdom, six of which acted as airborne spares and returned to the base after the initial refueling; five EF-111As from the 42d Electronic Combat squadron at RAF Upper Heyford, three of which would take part in the attack; 28 KC-10 and KC-135 tankers; Navy E-2Cs for surveillance; F-14s and F/A-18s; EA-6Bs for electronic countermeasures; and A-6Es for attack. The targets were “purported terrorist installations comprising command and control systems and training, logistics, intelligence and communications facilities.”

The attack scheme used the EF-111s and the EA-6Bs, equipped with similar jamming systems, or nonlethal or electronic defense suppression prior to the arrival of the attack aircraft over target. Six Navy F/A-18s and six A-7Es provided the lethal side of the defense suppression role. The A-7E is capable of firing both the AGM-45 Shrike and the AGM-88 HARM, while the F/A-18 is only HARM-capable, and together they fired nearly 50 antiradiation missiles (12 Shrikes

and about 36 HARMs) at Libyan air defense sites. Still, "the attacking aircraft encountered heavy surface-to-air missile activity near Tripoli and at one downtown target near Benghazi. The activity included SA-2, SA-3, SA-6, and SA-8 missiles." Significantly, the SA-5 site at Sirte, which was attacked during the Navy raids in March, came up as the attack aircraft were egressing the target area, but no missiles were fired from the site and no antiradiation missiles were expended against it. Only one aircraft, a USAF F-111, was lost in the raid, for causes as yet unknown.

Source: Hewitt, William A., *Planting the Seeds of SEAD*, Maxwell AFB: Air University Press, 1993.

- Based on the JFC guidance, the ground and naval components' fire support elements and fire support coordination centers will determine the suppression systems available to conduct localized suppression. Examples of these capabilities/forces include field artillery, mortars, naval surface fire, attack helicopters, electronic warfare, and surface-to-surface missiles. Components need to coordinate employment of these suppression systems to ensure they meet mission requirements and do not interfere with other planned operations. Component liaison elements located

LOCALIZED SUPPRESSION PLANNING RESPONSIBILITIES

The echelon requesting support starts localized suppression planning. This planning must be integral to specific air mission planning and use existing C4.

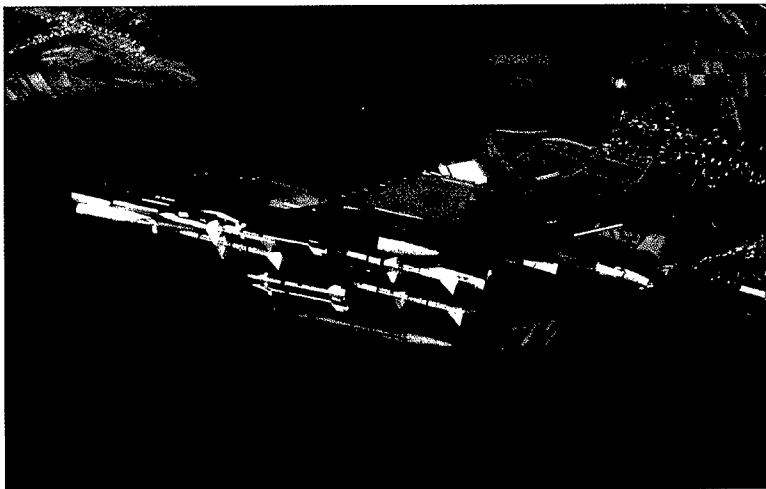
The JFACC coordinates employment of airborne suppression capabilities/forces made available in support of other components.

The JFACC develops a recommended threat priority list. The enemy air defense order of battle, its system capabilities, and the flight profiles and defensive capabilities of projected friendly aircraft govern the priorities on this list.

Organic intelligence agencies use this localized threat priority list for planning, intelligence collection, and analysis of operational effectiveness. The agencies review aircrew reports on the effectiveness of enemy air defense systems and, if necessary, realign the threat priority list. J-SEAD planners should reference the appropriate threat priority list for the air mission they support.

Figure III-2. Localized Suppression Planning Responsibilities

Chapter III



Localized suppression operations, using preplanned or immediate mission procedures, are designed to support specific joint operations/missions and contribute to friendly air superiority for an objective time period.

with the JFACC **assist localized suppression operations** by providing the means to request surface fire support. The component commanders continually update lists of potential SEAD targets in their areas of interest.

- The **list of targets** includes information such as target location, desired effects, timing, and sequence of attack. Component liaison elements, such as the **Battlefield Coordination Element**, are responsible to their respective command for consolidating their component's SEAD target priorities.
- **Tactical air control parties, air and naval gunfire liaison companies**, and fire support agencies identify potential local SEAD targets and request SEAD fire support.

d. **Mission Planning.** The SEAD process is based upon the JFC campaign or operation plan and the components determination of suppression needs, target priorities, and availability of appropriate suppression means.

- **Preplanned Mission.** A unit initiating

a preplanned request for J-SEAD should also **identify known or suspected enemy air defense locations enroute to and from and around the target area**. Each echelon handling the request **refines and updates threat data** if able. The request for air support contains this updated data, along with the type of suppression desired by the requesting component.

- **Immediate Missions**

- **Threat assessment and suppression requirements**, usually destructive in nature, **must be made quickly** when processing a request for air support. Any friendly forces on the air request net able to meet suppression requirements may enter the air request net by contacting the tactical air control party or air and naval gunfire liaison company to respond to the specific SEAD request. Procedures for requesting localized suppression are the same as those for close air support.

- **If a surface force cannot support**

J-SEAD Operations

the **SEAD requirement**, the component control center, Air Force Air Support Operations Center, Marine Corps Direct Air Support Center, or the Navy Supporting Arms Coordination Center passes the request through the component senior air control agency to the JFACC for **immediate SEAD support consideration**. In supporting the request, the JFACC may divert air capabilities/forces made available to the JFACC.

• **Execution timing** is based on the requested time on target and is relayed from the component control center to the suppressing unit. If a unit cannot fulfill a prearranged localized suppression commitment, it must relay this information immediately to the component control center through the appropriate command element. If localized suppression capabilities or requirements change, appropriate elements should notify the requesting unit immediately.

• **Joint Fire Requests for Corridor Suppression.** All components may request J-SEAD support for corridor suppression. The missions shown in

Figure III-3 may require corridor suppression.

e. Coordination

- **SEAD coordination occurs at all echelons.** Processing of localized suppression requests proceeds from the lowest echelon of command to the highest using the appropriate air control system. Coordination is important to avoid mutual interference and for target prioritization. Liaison elements located in the Joint Air Operations Center aid this effort. See Pub 3-56.1 for details on the JAOC and these elements.
- **A requesting echelon or component must first consider what organic SEAD systems are available.** When the requirements exceed the capability or availability of its systems, the requesting component passes the requirements through its respective chain of command to the JFACC for resolution.
- **Units requesting air support will identify known or suspected enemy air defense systems** that could threaten the mission. SEAD requests will also

MISSIONS REQUIRING CORRIDOR SUPPRESSION

Missions transiting the forward line of own troops (FLOT)

Air missions supporting tactical airlift or combat search and rescue operations

Support of special operations

Helicopter operations forward to the FLOT

Figure III-3. Missions Requiring Corridor Suppression

Chapter III

include these defense systems and identify targets that cannot be engaged with organic capabilities/forces.

- **When supporting units cannot fulfill a SEAD commitment to support a mission, they must relay this information to the appropriate agency.** The fire support element then either resolves the shortfall or relays it to the next higher force headquarters. The components will also use their organic communications capability to notify the JFACC of the shortfall.

4. Opportune Suppression

Many air defense threats are not identified in enough time for planned suppression. **Opportune suppression is usually unplanned and includes aircrew self-defense and attack against targets of opportunity. The JFC or higher authority will establish the rules of engagement for opportune suppression.**

a. **Aircrew Self-defense.** Unless otherwise dictated by the laws of war, **restrictions ordinarily should be imposed only for the safety of friendly forces.**

b. **Targets of Opportunity.** SEAD targets of opportunity are those **enemy air defense systems detected by surface or airborne sensors or observers within range of available weapons and not yet targeted.** Many SEAD efforts by surface forces may be against targets of opportunity. Surface and air weapon systems may suppress air defense targets of opportunity whenever capabilities, mission priorities, and rules of engagement permit. Such suppression operations must be in accordance with established rules and fire support coordination measures. The purpose of SEAD ROE is to enhance effective suppression of enemy air defenses while minimizing risks to friendly forces.

c. **Targets Acquired by Observers or Controllers.** Many combat elements may often be in good position to acquire SEAD targets of opportunity. **Observers, spotters, controllers, and liaison officers from the components have the authority to request suppression for SEAD targets of opportunity.** Such personnel include Air Force air liaison officers, enlisted terminal attack controllers, airborne forward air controllers, tactical air control parties, Marine assault support coordinators and airborne tactical air controllers, artillery forward observers, Marine infantry commanders, Army aerial observers, unmanned aerial vehicles, and combat observation and lasing teams. The observers or controllers will forward these requests through their respective fire support channels. **The following procedures apply:**

- Requirements should first be passed to suppression systems that belong to or support the unit acquiring the target because they can respond immediately.
- If the suppression requirement exceeds the capabilities of the ground forces, the immediate request will be sent via the air request net to the component control centers.

d. **Targets Acquired by Aircrews.** When **aircrews** have acquired SEAD targets of opportunity but have not engaged them because of mission priorities, system capabilities, or SEAD ROE, they **pass the information to the agency controlling their mission.** This agency immediately passes the targeting data through the appropriate system or systems to coordinate with the force best suited for targeting.

e. **Coordination. Opportune suppression is a continuous operation** involving immediate response to acquired air defense targets of opportunity. In

J-SEAD Operations

support of the operation or campaign plan, **the component commander may assign, for a specific period of time, a higher priority of effort to those areas where the campaign or operation plans call for air operations.** In cases where air assets are not available or not required, the

component commander establishes priorities for opportune suppression. These priorities are forwarded from the designated fire support coordinator at component level headquarters to the executing commands.

Chapter III

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APPENDIX A

REFERENCES

The following references were reviewed and considered during the development of this publication.

1. Joint Publications.

- a. Joint Pub 0-2, "Unified Action Armed Forces (UNAAF)."
- b. Joint Pub 1-02, "DOD Dictionary of Military and Associated Terms."
- c. Joint Pub 3-01.2, "Doctrine for Theater Counterair Operations."
- d. Joint Pub 3-03, "Doctrine for Joint Interdiction Operations" (in development).
- e. Joint Pub 3-04, "Doctrine for Joint Maritime Operations (Air)."
- f. Joint Pub 3-09, "Doctrine for Joint Fire Support" (in development).
- g. Joint Pub 3-09.2, "JTTP for Radar Beacon Operations (J-BEACON)"
- h. Joint Pub 3-52, "Doctrine for Joint Airspace Control in the Combat Zone."
- i. Joint Pub 3-56.1, "Command and Control for Joint Air Operations."
- j. Joint Pub 5-0, "Doctrine For Planning Joint Operations."

2. Multi-Service Publications.

- a. TACP 50-29/TRADOC Pam 525-45/USREDCOM Pam 525-8, 31 December 1984, "General Operating Procedures for Joint Attack of the Second Echelon (J-SAK)."
- b. FM 90-20/FMFRP 2-72/TACP 50-8/USAFEP 50-8/PACAFP 50-8/AACP 50-8, April 1989, "Multi-Service Procedures for the Joint Application of Firepower (J-Fire)."
- c. FM 90-21/FMFRP 5-44/TACP 50-20/USAFEP 50-20/PACAFP 50-20, October 1991, "Multi-Service Procedures for Joint Air Attack Team (JAAT) Operations."
- d. TH 61A1-39 [Air Force]/NAVAIR OO-13OASR-9 [Navy]/FMFM 5-2G-6(C) [Marine Corps]/FM 101-50-31 [Army], "Joint Munitions Effectiveness Manual/ Air-to-Surface (JMEM/AS)-Special Applications: Group Risk Estimates for Friendly Troops" (U). Each volume dated separately.
- e. AFM 2-50/FM 100-27, 31 August 1985, "US Army/US Air Force Doctrine for Joint Airlift and Tactical Airlift Operations."

Appendix A

f. AFM 2-14/FM 100-42, 1 November 1976, "US Air Force/US Army Airspace Management in an Area of Operations."

3. US Army Publications.

a. FM 44-3, 15 June 1984, "Air Defense Artillery Employment: Chaparral/Vulcan/Stinger."

b. FM 100-26, 30 March 1973, "The Air-Ground Operations System."

c. FM 1-103, 30 December 1981, "Airspace Management and Army Air Traffic in a Combat Zone."

d. FM 100-103, 7 October 1987, "Army Airspace Command and Control in a Combat Zone."

e. FM 1-112, 14 July 1986, "Attack Helicopter Battalion."

f. FM 1-100, 28 September 1989, "Doctrinal Principles for Army Aviation in Combat Operations."

g. FM 6-20-2 (HTF), 30 September 1983, "Division Artillery, Field Artillery Brigade, and Field Artillery Section (Corps)."

h. FM 6-20-1J, 14 June 1984, "Field Artillery Battalion."

i. FM 6-42, 13 March 1985, "Field Artillery Battalion, Lance."

j. FM 6-20-1 (HTF), 27 December 1983, "Field Artillery Cannon Battalion."

k. FM 6-121, 13 December 1984, "Field Artillery Target Acquisition."

l. FM 6-20, 17 May 1988, "Fire Support in the AirLand Battle."

m. FM 100-5, 5 May 1986, "Operations."

n. FM 6-1, 13 May 1986, "TACFIRE Operations."

o. FM 44-1, 9 May 1983, "US Army Air Defense Artillery Employment."

4. US Air Force Publications.

a. Air Force Manual 1-1, Mar 1992, "Basic Aerospace Doctrine of the United States Air Force."

b. MCM 3-1 (16 volumes), "Mission Employment Tactics," each volume dated separately.

References

- c. TACR 55-46, 20 April 1988, "Tactical Air Control System (TACS)."
- d. Tactical Air Force Guide for Integrated Electronic Combat, November 1989.
- 5. US Marine Corps Publications.
 - a. FMFM 2-7, 25 September 1981, "Fire Support in Marine Air-Ground Task Force Operations."
 - b. FMFM 2-7-1, 8 July 1992, "Fire Support Coordination by the MAGTF Command Element."
 - c. FMFM 6-8, 5 November 1990, "Supporting Arms Observation, Spotter, and Controller."
 - d. FMFM 6-18, 27 March 1992, "Techniques and Procedures for Fire Support Coordination."
 - e. FMFM 5-1, 16 October 1991, "Organization and Function of Marine Aviation."
 - f. FMFM 5-40, 27 March 1991, "Offensive Air Support."
 - g. FMFM 5-41, 28 October 1992, "Close Air Support and Close-In Fire Support."
- 6. US Navy Publications.
 - a. NWP 10-2, "Strike Operations Against Land Target."
 - b. NWP 22-2, "Supporting in Amphibious Operations."
 - c. MWP 55 Series, "Aircraft Tactical Manual"
 - d. Surface Force Tacnote PD 341-1-90, "Suppression of Enemy Air Defenses (SEAD) and Counter Mechanized (Countermech) Naval Gunfire Support (NGFS) Fire Missions (SEAD/Countermech/NGFS)."
 - e. NWP 10-1, "Composite Warfare Commanders Manual."
 - f. ATP 37 (w/change), July 1975, "Supporting Arms in Amphibious Operations."
 - g. NWP 10-1-13, "Joint Reporting System."

Appendix A

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APPENDIX B

ADMINISTRATIVE INSTRUCTIONS

1. User Comments

Users in the field are highly encouraged to submit comments on this publication to the Joint Warfighting Center, Attn: Doctrine Division, Fenwick Road, Bldg 96, Fort Monroe, VA 23651-5000. These comments should address content (accuracy, usefulness, consistency, and organization), writing, and appearance.

2. Authorship

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3. Change Recommendations

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- c. Record of Changes:

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Appendix B

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Air Force: Air Force Publications Distribution Center
2800 Eastern Boulevard
Baltimore, MD 21220-2896

Navy: CO, Navy Aviation Supply Office
Distribution Division (Code 03443)
5801 Tabor Avenue
Philadelphia, PA 19120-5000

Marine Corps: Marine Corps Logistics Base
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GLOSSARY

PART I—ADMINISTRATIVE INSTRUCTIONS

AAA	antiaircraft artillery
AOR	area of responsibility
ARM	antiradiation missiles
C4	command, control, communications, and computers
COA	course of action
EW	electronic warfare
FEBA	forward edge of the battle area
GCI	ground controlled interception
IADS	integrated air defense system
J-2	Joint Force Director for Intelligence
J-3	Joint Force Director for Operations
J-6	Joint Force Director for Command, Control, Communications, and Computer Systems
JCEWS	joint force commander's electronic warfare staff
JFACC	joint force air component commander
JFC	joint force commander
JFSOCC	joint force special operations component commander
JOA	joint operations area
J-SEAD	joint suppression of enemy air defenses
JTCB	joint targeting coordination board
ROE	rules of engagement
SAM	surface-to-air missile
SEAD	suppression of enemy air defenses
SOF	special operations forces

PART II—TERMS AND DEFINITIONS

- airborne early warning and control.** Air surveillance and control provided by airborne early warning vehicles which are equipped with search and height-finding radar and communications equipment for controlling weapon systems. (Joint Pub 1-02)
- air corridor.** A restricted air route of travel specified for use by friendly aircraft and established for the purpose of preventing friendly aircraft from being fired on by friendly forces. (Joint Pub 1-02)
- air defense.** All defensive measures designed to destroy attacking enemy aircraft or missiles in the Earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. (Joint Pub 1-02)
- air interdiction.** Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (Joint Pub 1-02)
- airlift control center.** An operations center where the detailed planning, coordinating, and tasking for tactical airlift operations are accomplished. This is the focal point for communications and the source of control and direction for the tactical airlift forces. Also called ALCC. (Joint Pub 1-02)
- air request net.** A high frequency, single sideband, nonsecure net monitored by all tactical air control parties (TACPs) and the air support operations center (ASOC) that allows immediate requests to be transmitted from a TACP at any Army echelon directly to the ASOC for rapid response. (Joint Pub 1-02)
- allocation (air).** The translation of the apportionment into total numbers of sorties by aircraft type available for each operation/task. (Joint Pub 1-02)
- apportionment (air).** The determination and assignment of the total expected effort by percentage and/or by priority that should be devoted to the various air operations and/or geographic areas for a given period of time. (Joint Pub 1-02)
- battlefield coordination element.** An Army liaison provided by the Army component commander to the Air Operations Center (AOC) and/or to the component designated by the joint force commander (JFC) to plan, coordinate, and deconflict air operations. The battlefield coordination element processes Army requests for tactical air support, monitors and interprets the land battle situation for the AOC, and provides the necessary interface for exchange of current intelligence and operational data. Also called BCE. (Joint Pub 1-02)
- campaign.** A series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (Joint Pub 1-02)
- campaign plan.** A plan for a series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (Joint Pub 1-02)
- close air support.** Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the

Glossary

fire and movement of those forces. Also called CAS. (Joint Pub 1-02)

combatant command (command authority). Nontransferable command authority established by title 10 ("Armed Forces"), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (Joint Pub 1-02)

command. 1. The authority that a commander in the Military Service lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the

accomplishment of assigned missions. It also includes responsibility for health, welfare, morale, and discipline of assigned personnel. 2. An order given by a commander; that is, the will of the commander expressed for the purpose of bringing about a particular action. 3. A unit or units, an organization, or an area under the command of one individual. 4. To dominate by a field of weapon fire or by observation from a superior position. (Joint Pub 1-02)

deception. Those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce him to react in a manner prejudicial to his interests. (Joint Pub 1-02)

direct air support center (airborne). An airborne aircraft equipped with the necessary staff personnel, communications, and operations facilities to function as a direct air support center. (Joint Pub 1-02)

echelon. 1. A subdivision of a headquarters, i.e., forward echelon, rear echelon. 2. Separate level of command. As compared to a regiment, a division is a higher echelon, a battalion is a lower echelon. 3. A fraction of a command in the direction of depth, to which a principal combat mission is assigned; i.e., attack echelon, support echelon, reserve echelon. 4. A formation in which its subdivisions are placed one behind another, with a lateral and even spacing to the same side. (Joint Pub 1-02)

electromagnetic spectrum. The range of frequencies of electromagnetic radiation from zero to infinity. It is divided into 26 alphabetically designated bands. (Joint Pub 1-02)

electronic warfare. Any military action involving the use of electromagnetic

Glossary

energy and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support.

a. **electronic attack.** That division of electronic warfare involving the use of electromagnetic or directed energy to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability. Also called EA. EA includes: (1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception and (2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, RF weapons, particle beams).

b. **electronic protection.** That division of electronic warfare involving actions to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP.

c. **electronic warfare support.** That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition. Thus, electronic warfare support provides information required for immediate decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called ES. Electronic warfare support data can be used to

produce signals intelligence (SIGINT), both communications intelligence (COMINT) and electronic intelligence (ELINT). (Joint Pub 1-02)

emission control. The selective and controlled use of electromagnetic, acoustic, or other emitters to optimize command and control capabilities while minimizing, for operations security, detection by enemy sensors; to minimize mutual interference among friendly systems; and/or to execute a military deception plan. Also called EMCON. See also electronic warfare. (Joint Pub 1-02)

fire support coordination. The planning and executing of fire so that targets are adequately covered by a suitable weapon or group of weapons. (Joint Pub 1-02)

fire support coordination center. A single location in which are centralized communications facilities and personnel incident to the coordination of all forms of fire support. See also supporting arms coordination center. (Joint Pub 1-02)

forward air controller. An officer (aviator/pilot) member of the tactical air control party who, from a forward ground or airborne position, controls aircraft in close air support of ground troops. (Joint Pub 1-02)

forward edge of the battle area. The foremost limits of a series of areas in which ground combat units are deployed, excluding the areas in which the covering or screening forces are operating, designated to coordinate fire support, the positioning of forces, or the maneuver of units. Also called FEBA. (Joint Pub 1-02)

forward line of own troops. A line which indicates the most forward positions of

Glossary

friendly forces in any kind of military operation at a specific time. The forward line of own troops normally identifies the forward location of covering and screening forces. Also called FLOT. (Joint Pub 1-02)

forward observer. An observer operating with front line troops and trained to adjust ground or naval gunfire and pass back battlefield information. In the absence of a forward air controller, the observer may control close air support strikes. (Joint Pub 1-02)

ground controlled interception. A technique which permits control of friendly aircraft or guided missiles for the purpose of effecting interception. (Joint Pub 1-02)

identification, friend or foe. A system using electromagnetic transmissions to which equipment carried by friendly forces automatically responds, for example, by emitting pulses, thereby distinguishing themselves from enemy forces. Also called IFF. (Joint Pub 1-02)

immediate air support. Air support to meet specific requests which arise during the course of a battle and which by their nature cannot be planned in advance. (Joint Pub 1-02)

immediate mission request. A request for an air strike on a target which, by its nature, could not be identified sufficiently in advance to permit detailed mission coordination and planning. (Joint Pub 1-02)

indirect fire. Fire delivered on a target that is not itself used as a point of aim for the weapons or the director. (Joint Pub 1-02)

intelligence. 1. The product resulting from the collection, processing, integration,

analysis, evaluation, and interpretation of available information concerning foreign countries or areas. 2. Information and knowledge about an adversary obtained through observation, investigation, analysis, or understanding. (Joint Pub 1-02)

joint. Connotes activities, operations, organizations, etc., in which elements of two or more Military Departments participate. (Joint Pub 1-02)

joint force. A general term applied to a force composed of significant elements, assigned or attached, of two or more Military Departments, operating under a single commander authorized to exercise operational control. (Joint Pub 1-02)

joint force air component commander.

The joint force air component commander derives authority from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision). Using the joint force commander's guidance and authority, and in coordination with other Service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to the joint force commander apportionment of air sorties

Glossary

to various missions or geographic areas.
Also called JFACC. (Joint Pub 1-02)

joint force commander. A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (Joint Pub 1-02)

joint force special operations component commander. The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of special operations forces and assets, planning and coordinating special operations, or accomplishing such operational missions as may be assigned. The joint force special operations component commander is given the authority necessary to accomplish missions and tasks assigned by the establishing commander. The joint force special operations component commander will normally be the commander with the preponderance of special operations forces and the requisite command and control capabilities. Also called JFSOCC. (Joint Pub 1-02)

joint operations. A general term to describe military actions conducted by joint forces, or by Service forces in relationships (e.g., support, coordinating authority), which, of themselves, do not create joint forces. (Joint Pub 1-02)

joint special operations task force. A joint task force composed of special operations units from more than one Service, formed to carry out a specific special operation or prosecute special operations in support of a theater campaign or other operations. The joint special operations task force

may have conventional nonspecial operations units assigned or attached to support the conduct of specific missions. Also called JSOTF. (Joint Pub 1-02)

joint suppression of enemy air defenses. A broad term that includes all suppression of enemy air defenses activities provided by one component of a joint force in support of another. Also called J-SEAD. (Approved for inclusion in the next edition of Joint Pub 1-02)

joint target list. A consolidated list of selected targets considered to have military significance in the joint operations area. (Joint Pub 1-02)

joint task force. A joint force that is constituted and so designated by the Secretary of Defense, a combatant commander, a subunified commander, or an existing joint task force commander. Also called JTF. (Joint Pub 1-02)

liaison. That contact or intercommunication maintained between elements of military forces to ensure mutual understanding and unity of purpose and action. (Joint Pub 1-02)

maneuver. 1. A movement to place ships or aircraft in a position of advantage over the enemy. 2. A tactical exercise carried out at sea, in the air, on the ground, or on a map in imitation of war. 3. The operation of a ship, aircraft, or vehicle, to cause it to perform desired movements. 4. Employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission. (Joint Pub 1-02)

mission. 1. The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. 2.

Glossary

In common usage, especially when applied to lower military units, a duty assigned to an individual or unit; a task. 3. The dispatching of one or more aircraft to accomplish one particular task. (Joint Pub 1-02)

observed fire. Fire for which the point of impact or burst can be seen by an observer. The fire can be controlled and adjusted on the basis of observation. (Joint Pub 1-02)

operation. A military action or the carrying out of a strategic, tactical, service, training, or administrative military mission; the process of carrying on combat, including movement, supply, attack, defense, and maneuvers needed to gain the objectives of any battle or campaign. (Joint Pub 1-02)

operational control. Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Operational control normally provides full authority to

organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called OPCON. (Joint Pub 1-02)

operation order. A directive issued by a commander to subordinate commanders for the purpose of effecting the coordinated execution of an operation. (Joint Pub 1-02)

operation plan. Any plan, except for the Single Integrated Operation Plan, for the conduct of military operations. Plans are prepared by combatant commanders in response to requirements established by the Chairman of the Joint Chiefs of Staff and by commanders of subordinate commands in response to requirements tasked by the establishing unified commander. Operation plans are prepared in either a complete format (OPLAN) or as a concept plan (CONPLAN). The CONPLAN can be published with or without a time-phased force and deployment data (TPFDD) file. a. OPLAN. An operation plan for the conduct of joint operations that can be used as a basis for development of an operation order (OPORD). An OPLAN identifies the forces and supplies required to execute the CINC's Strategic Concept and a movement schedule of these resources to the theater of operations. The forces and supplies are identified in TPFDD files. OPLANs will include all phases of the tasked operation. The plan is prepared with the appropriate annexes, appendixes, and TPFDD files as described in the Joint Operation Planning and Execution System manuals containing planning policies, procedures,

Glossary

and formats. Also called OPLAN. b. CONPLAN. An operation plan in an abbreviated format that would require considerable expansion or alteration to convert it into an OPLAN or OPORD. A CONPLAN contains the CINC's Strategic Concept and those annexes and appendixes deemed necessary by the combatant commander to complete planning. Generally, detailed support requirements are not calculated and TPFDD files are not prepared. Also called CONPLAN. c. CONPLAN with TPFDD—A CONPLAN with TPFDD is the same as a CONPLAN except that it requires more detailed planning for phased deployment of forces. (Joint Pub 1-02)

preplanned air support. Air support in accordance with a program, planned in advance of operations. (Joint Pub 1-02)

preplanned mission request. A request for an air strike on a target which can be anticipated sufficiently in advance to permit detailed mission coordination and planning. (Joint Pub 1-02)

rules of engagement. Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE. (Joint Pub 1-02)

signals intelligence. 1. A category of intelligence comprising either individually or in combination all communications intelligence, electronics intelligence, and foreign instrumentation signals intelligence, however transmitted. 2. Intelligence derived from communications, electronics, and foreign instrumentation signals. Also called SIGINT. (Joint Pub 1-02)

special operations. Operations conducted by specially organized, trained and equipped military and paramilitary forces to achieve military, political, economic, or psychological objectives by unconventional military means in hostile, denied, or politically sensitive areas. These operations are conducted during peacetime competition, conflict, and war, independently or in coordination with operation of conventional, non special-operations forces. Political-military considerations frequently shape special operations, requiring clandestine, covert, or low visibility techniques and oversight at the national level. Special operations differ from conventional operations in degree of physical and political risk, operational techniques, mode of employment, independence from friendly support, and dependence on detailed operational intelligence and indigenous assets. Also called SO. (Joint Pub 1-02)

special operations forces. Military units of the Army, Navy, and Air Force that are designated for special operations, as that term is defined, and are organized, trained, and equipped specifically to conduct special operations. Also called SOF. (Joint Pub 1-02)

supporting arms coordination center. A single location on board an amphibious command ship in which all communication facilities incident to the coordination of fire support of the artillery, air, and naval gunfire are centralized. This is the naval counterpart to the fire support coordination center utilized by the landing force. See also fire support coordination center. (Joint Pub 1-02)

suppression of enemy air defenses. That activity which neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or

Glossary

disruptive means. Also called SEAD. (Joint Pub 1-02)

surface-to-air guided missile. A surface-launched guided missile for use against air targets. (Joint Pub 1-02)

tactical control. Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. Also called TACON. (Joint Pub 1-02)

target of opportunity. 1. A target visible to a surface or air sensor or observer, which is within range of available weapons and against which fire has not been scheduled or requested. 2. nuclear--A nuclear target observed or detected after an operation begins that has not been previously considered, analyzed or planned for a nuclear strike. Generally fleeting in nature, it should be attacked as soon as possible within the time limitations imposed for coordination and warning of friendly troops and aircraft. (Joint Pub 1-02)

theater. The geographical area outside the continental United States for which a commander of a combatant command has been assigned responsibility. (Joint Pub 1-02)

unified command. A command with a broad continuing mission under a single commander and composed of significant assigned components of two or more Military Departments, and which is established and so designated by the President, through the Secretary of Defense with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Also called unified combatant command. (Joint Pub 1-02)

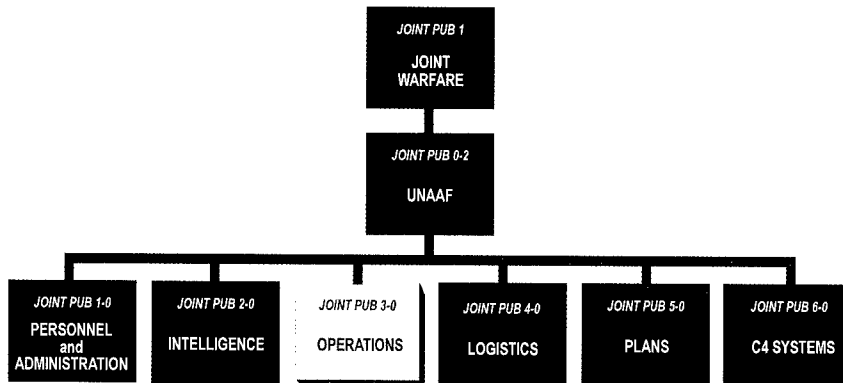
unmanned aerial vehicle. A powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or nonlethal payload. Ballistic or semi-ballistic vehicles, cruise missiles, and artillery projectiles are not considered unmanned aerial vehicles. Also called UAV. (Joint Pub 1-02)

wartime reserve modes. Characteristics and operating procedures of sensor, communications, navigation aids, threat recognition, weapons, and counter-measures systems that will contribute to military effectiveness if unknown to or misunderstood by opposing commanders before they are used, but could be exploited or neutralized if known in advance. Wartime reserve modes are deliberately held in reserve for wartime or emergency use and seldom, if ever, applied or intercepted prior to such use. Also called WARM. (Joint Pub 1-02)

Glossary

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All joint doctrine and tactics, techniques, and procedures are organized into a comprehensive hierarchy as shown in the chart above. **Joint Pub 3-01.4** is in the **Operations** series of joint doctrine publications. The diagram below illustrates an overview of the development process:

